Abstract

An efficient, high-quality interference analysis taking into consideration characteristics of adaptive antennas is made possible by a frequency planning device and, respectively, a method for interference analysis for a mobile radio network exhibiting an adaptive antenna in at least some of its cells (figure 4 BSi) comprising traffic channels and control channels

- in which (figure 6) for the mobile radio network frequency allocation planning, in each case the interference ratio (C/I or $I_{i,j}$) of the interference (I) of the traffic channels (11;12 … 18 in figure 3 and BSi, BSj in figure 6) of an adaptive antenna of a first cell (BSj) with traffic channels of an adaptive antenna of a second cell (BSi) is calculated as a sum of the interference probabilities ($Prob$ $\{MS$ in $beam$ $b\}.Prob$ $(MS$ in $beam$ $a).I_{ib,jo})$ weighted with the traffic values of the individual part-cells, of the interferences of in each case one traffic channel of the adaptive antenna of the first cell with a user signal of in each case one traffic channel of the adaptive antenna of the second cell,

- in which (figure 5) the interference ratio (I_{ij}) of the interference of a traffic channel of a first cell (BSj), without adaptive antenna with traffic channels of a second cell (BSi) with an adaptive antenna is calculated as the sum of the interference probabilities ($Prob$ $(MS$ in $beam$ $b).I_{ib,t})$, weighted with the traffic values

of the individual part cells, of the interferences of a traffic channel of the first cell (*BSj*) with in each case one traffic channel (19, 20, 21) of the adaptive antenna of the second cell (*BSi*),

- in which (figure 7) the interference ratio of the interference of a control channel of a first cell (*BSi*) with or without adaptive antenna with a control channel of a second cell (*BSj*) with or without adaptive antenna referred to the total cell area is calculated from the user signal/interference signal ratio ($(I_{j,t})\_tb$) of these control channels in the total cell area in each case without taking into consideration any adaptive antennas of one or both of these cells (*BSj, BSi*).